Gun-related Injury in Arizona
2011

February 5, 2013
Presented by Brenna Rabel, MPH
Outline

• Injuries caused by firearms
  – State-by-state comparisons
  – Overview of morbidity and mortality data, Arizona, 2011
  – Arizona Child Fatality Review findings

• Prevention strategies
Firearm deaths: State-by-State Comparison

2000-2006, United States
Death Rates per 100,000 Population
Firearm, All Intents, All Races, All Ethnolics, Both Sexes, All Ages
Annualized Crude Rate for United States: 10.32

[Map of the United States showing firearm death rates by state, with color codes for different rate ranges.]

Reports for All Ages include those of unknown ages.
* Rates based on 30 or fewer deaths may be unstable. States with these rates are cross-hatched in the map (see legend above). Such rates have an asterisk.

Produced by: Office of Statistics & Programming, National Center for Injury Prevention & Control, CDC
Data Sources: NCHS National Vital Statistics System for numbers of deaths; US Census Bureau for population estimates.
Injury-related Deaths

Firearm-related injuries

Arizona, 2011
Leading Causes of Injury-Related Death in Arizona, 2011*

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number (#)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Poisoning</td>
<td>1,144</td>
<td>25%</td>
</tr>
<tr>
<td>2. Firearms</td>
<td>931</td>
<td>20%</td>
</tr>
<tr>
<td>3. Falls</td>
<td>764</td>
<td>17%</td>
</tr>
<tr>
<td>4. Motor vehicle traffic</td>
<td>710</td>
<td>16%</td>
</tr>
<tr>
<td>5. Suffocation</td>
<td>340</td>
<td>7%</td>
</tr>
</tbody>
</table>

*Includes all manners of injury (intentional, unintentional, and unknown)
Comparing Injury Pyramids

Typically, deaths represent the tip of the iceberg of the overall injury problem. This is not the case for firearm-related injuries; deaths represent the largest proportion of the pyramid.
Case Fatality Rates

• What is a “case fatality rate” or “case fatality ratio”?
  – The ratio of deaths within a designated population of “cases”
• What is a “case”?
  – Any injury treated at an acute care, non-federal hospital, or that resulted in a death
  – NOTE: Untreated injuries, those treated outside of Arizona, or injuries treated at facilities not meeting the aforementioned criteria are not included
Leading causes of injury-related death, by case fatality ratio

<table>
<thead>
<tr>
<th>Cause</th>
<th># of deaths (d)</th>
<th># of cases (c*)</th>
<th>CFR (d/c*100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firearms</td>
<td>931</td>
<td>2,259</td>
<td>41%</td>
</tr>
<tr>
<td>Poisoning</td>
<td>1,144</td>
<td>20,590</td>
<td>6%</td>
</tr>
<tr>
<td>Falls</td>
<td>764</td>
<td>142,617</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>MV traffic</td>
<td>710</td>
<td>45,409</td>
<td>2%</td>
</tr>
</tbody>
</table>

*c=deaths + non-fatal hospitalizations + non-fatal emergency department visits
Firearm-related Deaths by Intent (Manner), Arizona 2005-2011

- **Suicide**: 62% (n=3,990)
- **Homicide**: 34% (n=2,147)
- **Unintentional**: 1% (n=74)
- **Undetermined**: 2% (n=108)
- **Legal intervention**: 1% (n=67)
Suicide Deaths by Gender and Mechanism, Arizona 2011

- **Males (n=851)**
  - 21% (n=182) Firearm
  - 8% (n=71) Poisoning
  - 67% (n=570) Suffocation
  - 4% (n=34) Other

- **Females (n=248)**
  - 17% (n=41) Firearm
  - 47% (n=116) Poisoning
  - 33% (n=81) Suffocation
  - 3% (n=7) Other

- **Total (n=1,099)**
  - 20% (n=223) Firearm
  - 17% (n=187) Poisoning
  - 59% (n=651) Suffocation
  - 3% (n=23) Other
Homicide Deaths by Gender and Mechanism, Arizona 2011

- **Males (n=296):**
  - Firearm: 69% (n=203)
  - Blunt/Sharp force trauma: 15% (n=43)
  - Suffocation: 2% (n=6)
  - Other/Unspecified: 15% (n=44)

- **Females (n=83):**
  - Firearm: 55% (n=46)
  - Blunt/Sharp force trauma: 7% (n=6)
  - Suffocation: 11% (n=9)
  - Other/Unspecified: 17% (n=14)

- **Total (n=379):**
  - Firearm: 66% (n=249)
  - Blunt/Sharp force trauma: 14% (n=52)
  - Suffocation: 3% (n=12)
  - Other/Unspecified: 17% (n=66)
Unintentional Firearm-related Deaths and Injuries in Arizona

• Infrequent
  – 74 unintentional firearm-related deaths between 2005 and 2011
• More common among males than females across all age groups
• Unintentional shootings are more likely to result in non-fatal outcome (hospitalization or ED visit) than violent or self-inflicted injury
Firearm-related Injuries among Young Arizonans
Leading Causes of Injury-related Death among Teens 15-19 years, Arizona, 2011

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number (#)</th>
<th>Percent (%)</th>
<th>Total # of Injuries*</th>
<th>Case Fatality Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor vehicle traffic</td>
<td>55</td>
<td>31%</td>
<td>5,545</td>
<td>1%</td>
</tr>
<tr>
<td><strong>Firearm</strong></td>
<td><strong>41</strong></td>
<td><strong>23%</strong></td>
<td><strong>267</strong></td>
<td><strong>15%</strong></td>
</tr>
<tr>
<td>Poisoning</td>
<td>30</td>
<td>17%</td>
<td>2,104</td>
<td>1%</td>
</tr>
</tbody>
</table>

*=deaths + non-fatal hospitalizations + non-fatal emergency department visits
Firearm-related deaths among 15-19 year olds by Intent, Arizona 2011

- n=3 (7%) Other
- n=18 (44%) Suicide
- n=20 (49%) Homicide

93% of all firearm-related deaths among 15-19 year olds were among males.
Leading Causes of Death among Children under 18, Arizona, 2011 (N=1,641,114)

<table>
<thead>
<tr>
<th>Rank</th>
<th>0-27 Days 40%, n=334</th>
<th>28-365 Days 21%, n=175</th>
<th>1-4 Years 13%, n=106</th>
<th>5-9 Years 6%, n=54</th>
<th>10-14 Years 9%, n=72</th>
<th>15-17 Years 11%, n=96</th>
<th>All Deaths 100%, n=837</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prematurity n=181, 22%</td>
<td>Other Medical Condition n=334, 40%</td>
<td>Other Medical Condition n=334, 40%</td>
<td>Other Medical Condition n=334, 40%</td>
<td>Other Medical Condition n=334, 40%</td>
<td>Other Medical Condition n=334, 40%</td>
<td>Other Medical Condition n=334, 40%</td>
</tr>
<tr>
<td>2</td>
<td>Congenital Anomaly n=65, 8%</td>
<td>Suffocation n=34, 4%</td>
<td>Drowning n=18, 2%</td>
<td>Transport n=13, 2%</td>
<td>Transport n=17, 2%</td>
<td>Transport n=21, 3%</td>
<td>Prematurity n=59, 7%</td>
</tr>
<tr>
<td>3</td>
<td>Other Medical Condition n=77, 9%</td>
<td>Undetermined n=30, 4%</td>
<td>Transport n=15, 2%</td>
<td>Drowning n=7, &lt;1%</td>
<td>Hanging n=10, 1%</td>
<td>Firearm n=15, 2%</td>
<td>Congenital Anomaly n=99, 12%</td>
</tr>
<tr>
<td>4</td>
<td>Suffocation n=5, &lt;1%</td>
<td>Congenital Anomaly n=5, &lt;1%</td>
<td>Blunt Force Trauma n=13, 1%</td>
<td>Firearm n=3, &lt;1%</td>
<td>Firearm n=3, &lt;1%</td>
<td>Hanging n=13, 2%</td>
<td>Transport n=70, 8%</td>
</tr>
</tbody>
</table>

Health and Wellness for all Arizonans

azdhs.gov
Firearm Deaths among children <18, Arizona Child Fatality Review, 2011

### Firearm-Related Deaths Among Children by Age Group, Arizona 2007-2011

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10 Years</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>10%</td>
<td>10%</td>
<td>25%</td>
<td>32%</td>
<td>22%</td>
</tr>
<tr>
<td>10-14 Years</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15%</td>
<td>14%</td>
<td>3%</td>
<td>36%</td>
<td>13%</td>
</tr>
<tr>
<td>15-17 Years</td>
<td>36</td>
<td>37</td>
<td>23</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>75%</td>
<td>76%</td>
<td>72%</td>
<td>32%</td>
<td>65%</td>
</tr>
<tr>
<td>Total</td>
<td>48</td>
<td>49</td>
<td>32</td>
<td>22</td>
<td>23</td>
</tr>
</tbody>
</table>
Owners of Firearms involved in Child Deaths, Arizona Child Fatality Review, 2011

<table>
<thead>
<tr>
<th>Location</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td>11</td>
<td>48%</td>
</tr>
<tr>
<td>No attempt to conceal</td>
<td>5</td>
<td>22%</td>
</tr>
<tr>
<td>Drawer/cabinet</td>
<td>4</td>
<td>17%</td>
</tr>
<tr>
<td>Under a mattress or pillow</td>
<td>2</td>
<td>9%</td>
</tr>
<tr>
<td>Safe</td>
<td>1</td>
<td>4%</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td></td>
</tr>
</tbody>
</table>
Key Findings from Hospital Discharge and Emergency Department Data, 2011

- The average hospital stay for a firearm-related injury was 6 days (median=3)
- Hospital charges added up to over $57.3 million (median=$49,517)
  - $25.9 million was paid through AHCCCS (45%)
- Emergency department charges added up to over $6.9 million (median=$5,127)
  - $2.3 million was paid through AHCCCS (33%)
Prevention

• Strategies differ based on intent (suicide, homicide, unintentional)
• Proper, locked storage for guns and ammunition
• Intentional requires an integrated approach
  • Mental health services
  • Non-violent conflict resolution education
  • Domestic violence prevention
  • Judicial system
Office of Injury Prevention

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